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AUTHOR Barbrack, Christopher R.
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ABSTRACT

Home visitors were used to teach mothers to be more effective educational change agents in their own homes. The one-hour visits continued over 30 weeks. The initial sample consisted of 72 Negro mothers and their first grade children. All children has had 8-week summer Head Start. Five treatment groups were (1) Mother-Involved Cognitive home visitor actively solicited the mothers' participation, and content supplemented the first grade curriculum, (2) Child-Centered Cognitive home visitor worked only with the children and did not solicit mother involvement, content same as for first group, (3) Mother-Involved Physical Training home visitor actively solicited mothers' participation, content designed to teach gross motor activities, (4) Local Control, and (5) Distal Control. The children were pre- and posttested on measures of intelligence, readiness and achievement, and the Maternal Teaching Style Instrument was used to assess the mothers' teaching behavior. Results suggest that a good treatment program might be a cognitive program which works to involve the mother by first demonstrating improvements in the child's behavior. (NH)

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FINAL REPORT

The Effect of Three Home Visiting Strategies upon Measures of Children's Academic Aptitude and Maternal Teaching Behaviors

Christopher R. Barbrack

Demonstration and Research Center for Early Education
George Peabody College for Teachers
Nashville, Tennessee

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INTRODUCTION

The interaction of public awareness and national concern with the notion that the incipient educational deficits which arise in the poverty environment are not irreversible, has been responsible, to some extent, for the appearance of numerous federally supported preschool programs.

It is extremely difficult to generalize from the data which have been generated by these preschool programs. Some (Blatt & Garfunkel, 1965; Henderson, 1965; Alpert, 1966) have reported that exposure to a nursery school experience resulted in no measurable difference for the experimental group of children on instruments designed to assess intelligence and reading readiness. Others (Goldstein, 1965; Gray and Klaus, 1965; Allegato, 1966; Hodges, et. al., 1967; Weikart, 1967) write with cautious optimism in testifying to the efficacy of preschool. A recent national survey (Cicirelli, et. al., 1969) of year long Head Start Programs showed that some positive gains were present with respect to measures of academic aptitude. Even though these gains in measured aptitude were marginal, the finding was remarkable given the shortcomings of the sampling procedures and design employed (Smith & Bissell, 1970), and the wide heterogeneity in treatment (curriculum) and treatment delivery systems (physical plant, materials and equipment, and staff) which exists over all Head Start Programs in this country.

In any case, in the face of such mixed results many researchers in the field of preschool for children from low income homes maintain that in order to do the job more effectively, educational intervention programs must be made more extensive. Some hold (Hodges, et. al., 1967) that attitudinal and other nonintellective factors which seem to be prerequisites for academic

success might best be manipulated in an extracurricular setting. Either by direct statements (Gray and Klaus, 1966A, 1966B; Gray, et. al., 1966C; Karnes, et. al., 1966; Deutsch, et. al., 1967; Hodges, et. al., 1967) or by implication drawn from program design (Weikart, 1967) many have suggested the home environment generally, and various parental factors specifically, as variables which, if properly modified, might enhance and sustain the long term intellectual growth and academic achievement of children who are exposed to classroom interventions.

The present study was an attempt to use home visitors to teach mothers to become effective educational change agents for their first grade children.

The present study rests upon the premise that the argument of poor people's possessing many strengths, some known and others yet to be discovered by the professional establishment of social reform, should not obscure the consequences which accrue to the poor when their time is so completely taken up in the struggle to survive.

The educational ramifications of these "consequences" for mothers and their young children are numerous and have been reported in the literature with increasing regularity over the past decade. While such studies have many shortcomings, they are fairly consistent in their findings and form the basis for many current educational intervention programs.

Using a combination of interview and observational procedures, Hess (undated manuscript) has made an extensive inquiry into the relationship between maternal characteristics and children's reading readiness scores. Those maternal characteristics which were found to be positively related to the child's measured readiness can be broken down into four categories:

1) Maternal attitudes--mother's feeling of power and prestige.

2) Method of maternal control--appealing to subjective, internal state of the child or of others with whom the child relates.

3) Maternal teaching style--providing a model for child to imitate, orienting child to a task and providing specific feedback.

4) Maternal affect--mother's ability to convey warmth and supportiveness to the child.

Hess and Shipman (1965) found that lower class mothers were less verbal and less able to operate on a conceptual level than a group of middle-class mothers. These authors concluded that inadequacy in mother-child communication in the lower class plays a primary role in retarding the language development of the child. The notion that serious deficiencies in language and verbal interaction are prevalent in poor families has been supported by a number of writers (Siller, 1967; Bernstein, 1961, 1962; Strodtbeck, 1964), though refuted by others (Labov, 1969). Hess and his associates (1969) also related inadequate mothering styles to the feelings of powerlessness which accrue as a result of low income mothers' having so little control over environmental forces.

Walters, Connor, and Zunich (1964) have found that there are marked differences in parent-child interaction behaviors when lower and middle-class mothers are contrasted over a series of studies. In these studies, middle-class mothers were found to emit more "contacting," "directing," "structurizing," and "teaching" responses and less "remaining out of contact" responses than lower class mothers when pressured by an "expert" to act to increase the quality of the child's responses.

In a longitudinal study Walters and Crandall (1964) used the Fels Parent Behavior Scales and reported that maternal coerciveness was associated with socio-economic class. Higher SES mothers in this study were described as significantly less dictatorial in their attempts to influence the child's behavior.

That such parental factors are related to the child's development was demonstrated in a review by Freeberg and Paine (1967) who concluded that there seemed to be a relationship between the child's cognitive development and the parents willingness to spend time with the child and to guide the child, parental aspirations for the child's achievement, parental acceptance, provision for the child's intellectual needs and a factor which the authors call "external resources" which refers to the use of available educational resources.

A recent study (Bee, et. al., 1969) which compared the teaching styles of lower and middle income mothers (including a cross race analysis in the low income group) reported that middle income mothers were less controlling, less disapproving, gave more information and gave more attention to their children than lower income mothers. This study was criticized by Soufre (1970) who raised questions about the biases introduced by the setting in which the observation took place, and the race, social class and expectation of the observers. Baratz and Baratz (1970) have raised similar issues with respect to intervention programs focussing on poverty groups which are theoretically undergirded by an "insufficiency model" or "social pathology model" with respect to the behavior of low income families. The Baratz argument is particularly cogent in the sense that much of the data which support such models may be as inaccurate and biased as Soufre contends. Furthermore, the Baratz argument underlines the value of a developmental model, such as the one employed

in the present home visitor program, for intervention programs with low income groups. A developmental approach focusses more upon the provision of developmentally appropriate experiences rather than upon individual or group inadequacie: Soufre raised one question in particular which was not answered in Bee's rebuttal (1970a), that is, to what extent is the variance in the child's measured ability accounted for by the maternal teaching style variables. This seems to be a vital issue to those involved in systematized attempts to change the teaching style of low income mothers. In a doctoral dissertation Wiegerink (1969) described a study in which four maternal variables were measured and correlated to the child's measured aptitude. These factors were: maternal teaching style, mother's socio-economic status, mother's personality rating, and mother's language. Results of a step-wise correlation indicated that maternal teaching style accounted for more variance (27%) in the child's Binet IQ than any of the other maternal factors. It seems, then, that the mother, in her role as the child's first and perhaps most important teacher, plays an important part in the cognitive development of the child, even if the nature of this role is not clearly understood.

Pulling together the threads from these few studies, a fairly consistent picture of the behavior of low income mothers seems to emerge. In the continual struggle for survival the poor mother often develops a feeling of powerlessness and low self-regard. She rarely sees herself as having enough control over environmental events to allow her to play an instrumental role in enhancing the development of her child. Her unawareness of the importance of order and structure in the home environment tends to compound the effect of the conditions under which she lives. Her children are many and frequently the demands of being a mother contribute to her sense of being overwhelmed. Having a large number of children prevails against her treating each child on an individual

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basis. She spends little time in active and verbal interaction with her children and often places a premium on control of behavior rather than on guiding and encouraging instrusions into the environment. Her methods of control are frequently punitive and physical. The paucity of stimulating "things" in the home leaves the child with little to fall back upon when left to keep himself busy. If these conditions persist over the early years of child's life - a crucial period of development - a child will probably not develop the skills and attitudes necessary for school success.

Such conditions lend support to Deutsch (1967) who has maintained that there exist formidable discontinuities between the socio-cultural milieu of the so-called deprived child and that of the school - discontinuities which do not exist to such an extent for the middle-class child and which predispose the deprived child to academic failure.

The present study embodies an attempt to bridge the gap which exists between low income children and public schools by training the low income mothers to be effective educational change agents in their own homes.

The questions the study asks are these: What is the effect of mothers' participation in a home visiting program on children's academic aptitude and on maternal teaching style? What is the effect of the content of a home visitor program upon these same variables? To what extent do the effects of a home visitor program diffuse to similar mothers and children in the treatment community who are not part of the treatment groups? The strategy is not to make low income homes more like middle income homes, rather it is designed to train low income mothers to provide appropriate developmental experiences for their young children.

HYPOTHESES

Hypothesis 1 — There will be no significant difference in academic aptitude, measured by the Stanford Binet and Metropolitan Achievement Tests, between a group of first grade children who have taken part in a home visitor program in which mother participation is encouraged and a group of similar children whose mothers are not encouraged to participate.

Hypothesis 2 — Participating mothers will emit significantly more Cue Label, Positive Feedback, Direction, Information, Question and Overall Total number of responses and significantly less Negative Feedback responses on the Maternal Teaching Style Instrument than non-participating mothers.

Hypothesis 3 — The academic aptitude of a group of first grade children who have been exposed to home visiting activities designed to supplement the cognitive aspects of the first grade curriculum will be superior to the academic aptitude of a similar group of first graders who are exposed to home visiting activities designed to promote gross motor development.

Hypothesis 4 — There will be no significant differences in maternal teaching style between mothers who participate in cognitive activities and mothers who participate in gross motor activities.

Hypothesis 5 — There will be no significant difference in academic aptitude between children in the Local and Distal control groups.

Hypothesis 6 — There will be no significant differences in maternal teaching style between mothers in the Local and Distal control groups.

METHODOLOGY

The initial sample for this study consisted of 72 mothers and their beginning first grade children. All of the children had attended an eight week summer Head Start program immediately prior to entering the first grade. All were Negro.

Table 1

Socioeconomic Data Describing Families in the Head Start Home Visitor Program*

	Average Educational Level of Mother	Average Family Size	Number of Father Absent Families	Average Quality of Housing (7 high, 1 low)	Average Crowding Ratio
T1 Mother-Involved Cognitive	10.39 range = 7-12	7.56	8	3.56	.67
T2 Child-Centered Cognitive	10.44 range = 8-14	7.50	9	3.83	1.44
T3 Mother-Involvement Physical Training	10.17 range = 8-14	7.12	8	3.89	.71
T4 Local Control	10.22 range = 7-12	7.22	7	3.06	.69
T5 Distal Control	10.28 range = 5-16	6.78	9	4.33	.87

*Data gathered using Peabody Cultural Opportunity Scale, Mercer, C. V. Cultural deprivation and reading achievement: A secondary analysis of the cooperative reading project data. George Peabody College, 1968.

Table 1 shows a summary of the socioeconomic characteristics of each group in the present study. A one-way analysis of variance comparing the mother's educational level, quality of housing and degree of home crowding (number of rooms/number of people) indicated no significant differences between groups.

The mothers of 54 Head Start children, out of a total of 55, in a small urban community in south-central Tennessee agreed to participate in the home visitor project. Each mother-child pair was then randomly assigned to one of three treatment groups.

The treatments broke down in this fashion:

T1 - Mother-Involved Cognitive--Home Visitor actively solicited mothers' participation in sessions. Content was designed to supplement first grade curriculum. (See Appendix A for detailed samples of the treatment.)

T3 - Mother-Involved Physical Training--Home Visitor actively solicited mothers' participation in sessions. Content was designed to teach the child a variety of gross motor activities. (See Appendix B for detailed samples of the treatment.)

T4 - Local Control Group

In order to examine for diffusion effects, a fourth group, T5 - Distal Control, of 18 mother-child pairs was randomly selected from all (N=27) Head Start graduates in another small urban community in south-central Tennessee. This community was comparable to the first in size and socioeconomic make up.

In order to contrast the effects of mother participation and non-participation, a fifth group (T2) of 18 (out of a total of 22 Head Start graduates) mother-child pairs were randomly selected. This group was drawn from a third small urban area in south-central Tennessee. This community,

although smaller, was comparable to the others in terms of socioeconomic make up. Home Visitors in this group worked only with the children (no solicitation of mothers' involvement), but the content was the same as T1.

The final plan, then, included five groups of 18 mother-child pairs:

T1 - Mother-Involved Cognitive--Home Visitor actively solicited mothers' participation in sessions. Content was designed to supplement first grade curriculum. Subjects drawn from community 1.

T2 - Child-Centered Cognitive--Home Visitor worked only with the children (no solicitation of mother involvement). Content same as T1. Subjects drawn from community 3.

T3 - Mother-Involved Physical Training--Home Visitor actively solicited mothers' participation in sessions. Content was designed to teach the child a variety of gross motor activities. Subjects drawn from community 1.

T4 - Local Control. Subjects drawn from community 1.

T5 - Distal Control. Subjects drawn from community 2.

Contrasting mothers and children from T1 and T2 allowed the isolation and analysis of the mother participation variable, while the contrast between T1 and T3 did the same for the home visit content variable. The control groups permitted the search for diffusion effects.

The program was presented to the mother as an attempt to find ways to help a child build upon his Head Start experiences so that he would do better in public school. A description of possible home visiting activities, and of the duration and extent of the intervention were given. (See Appendix C for the details of the presentation of the program to the different treatment

groups.) In the Mother-Involvement Cognitive group (T1) emphasis was placed upon the utilization of "things" and "events" in the home which could serve educational purposes, as well as upon the mother's participation during and after each visit. A similar presentation was made to mothers in the Child-Centered group, but mothers were told that the home visitor would only need to work with the child in a tutoring fashion. Presentation of the program to mothers in the Mother-Involvement Physical Training groups was based upon two main ideas: 1) that success in school activities, such as reading, is dependent upon various factors among which is physical coordination; and 2) that educators are not sure about which types of activities are most effective in remedying school failure and this physical training program embodied an attempt to try out a new approach to the problem. Mother participation during and after visits was also stressed.

Four community residents were employed and trained to act as Home Visitors. Children were randomly assigned to home visitors. A stratified random sampling procedure was employed using the treatment group as a stratifying variable. The results of this procedure are shown in Table 2.

Table 2

Assignment of Treatment Group Children to Home Visitors

Home Visitor	Treatment Groups			Total
	T1	T2	T3	
A	4	4	5	13
B	4	4	5	13
C	5	5	4	14
D	5	5	4	14

Home Visitor training was divided in two parts. The first was a 40 hour pre-service session in which the home visitors were acquainted with the purposes of the Home Visitor program and with the methods and materials which were going to be used in the initial home visits. The second part of the Home Visitor training lasted for the duration of the project. At the end of each week the home visitors met for approximately eight hours and evaluated the progress of each mother and/or child, and then planned the next week's activities. Modeling and role playing were frequently used as training techniques.

The home visits began early in the fall and continued over approximately 30 weeks.

The Stanford Binet and Metropolitan Readiness and Achievement tests were used as indices of the child's academic aptitude. The Maternal Teaching Style Instrument (Barbrack, 1969) was used to assess the mother's teaching behavior. This instrument was designed to create a situation in which the mother is required to help the child to successfully complete a series of similar tasks. (See Appendix D for directions for administration of the MTSI.)

The MTSI is comprised of 10 display cards. On most of the cards there are pictures of three geometric forms. Accompanying each card are three rubber forms which correspond to those shown on the card. The geometric forms vary in terms of color, shape, size, and position on the card. (See Appendix E.)

Only the mother's responses are rated, and this rating is done in two ways. During the actual performance, a trained observer rates the mothers' Non-Verbal responses. Non-Verbal responses are broken down into two broad categories: Gesture and Physical Contact, and each of these is again broken

down into: Direction, Positive Feedback, and Negative Feedback. As the observer rates the mother's Non-Verbal responses, the mother's verbalizations are recorded on tape. These verbal responses are later rated in terms of: Cue Label, Direction, Positive Feedback, Negative Feedback, Question, and Information. (See Appendix F for Observer Rating Sheet and Appendix G for a detailed description of the categories and unitization rules.)

Four observer-raters were trained to rate reliably the mother's non-verbal behavior prior to the pretest and posttest administration of the MTSI. The pretest training took approximately 40 hours and the posttest training approximately 30 hours. On the last day of training prior to the actual data gathering, percentage of agreement scores were computed between each of the four observers for five mother-child pairs. The mean percentage of agreement scores prior to pretesting ranged from .84 to .97 and prior to posttesting from .80 to .95 (See Appendix H.)

The mothers' verbalizations were tape recorded and later rated by two graduate students. These raters were trained approximately 20 hours for pre-test scoring and 20 hours for posttest scoring. Both raters rated each tape independently. Discrepant ratings were not included in the data analysis. Rater discrepancies accounted for the deletion of between 5% - 10% of all responses rated.

All of the observers were middle income, caucasian females. The observations were conducted in the public school which the child attended. Whether this had an adverse effect on the mothers in this study, as Soufre (1970) might contend, is a complex empirical question and beyond the scope of this paper. Theoretically, if such an observer effect were present, it would affect all mothers in the same or similar fashion. This possibility

seems less damaging than in the case of cross socio-economic class comparisons in which middle income observers might have an adverse effect upon low income mothers, but not on middle income mothers.

RESULTS

Data on intelligence, academic achievement, and maternal teaching style were analyzed to determine whether between group differences existed which could be attributed to the different home visiting approaches.

Table 3 presents pretest and posttest group mean scores on the Stanford-Binet. All group means reflected a gain from pretest to posttest except the Distal Control (T5) which decreased -.89. The greatest gain was in the Child-Centered Cognitive (T2) and was +.4.66.

Table 3

Pretest and Posttest Means on the Stanford Binet

Group		Pretest	Posttest	Change
T1	Mother-Involved Cognitive	77.76	79.05	+1.29
T2	Child-Centered Cognitive	82.22	86.88	+4.66
T3	Mother-Involved Physical Training	82.00	83.05	+1.05
T4	Local Control	82.66	85.11	+2.45
T5	Distal Control	82.61	81.72	- .89

The results of a one-way analysis of covariance (Hayes, 1965) of Binet scores are presented in Table 4. No statistically significant differences between groups were found.

Table 4

Summary of Analysis of Covariance of Stanford Binet (IQ) Scores

Source	df	MS	F	p
Error	83	56.70		
Groups	4	76.38	1.347	ns
Total	87			

A post hoc two way analysis of variance (Hays, 1965) was performed in order to address the issue as to whether children who begin with higher Binet scores experience greater gains from pretest to posttest than children who begin with lower Binet scores.

To perform this analysis each of the five groups was divided into a low half and high half on the basis of pretest scores on the Binet. Change scores for each subject were derived by computing the difference between the pre-Binet score and the post-Binet score. The results of this analysis, presented in Table 5, indicate no statistically significant differences in Binet gains between initially high IQ and initially low IQ groups.

Table 5

Summary of Two Way Analysis of Variance of Gain Scores of High IQ* and Low IQ Groups**

Source	df	MS	F	p
Error	79	60.45		
Between	9	41.64		
A (Groups	4	80.10	1.325	ns
B (IQ level)	1	.21	0.003	ns
A x B	4	13.53	0.223	ns
Total	88			

*T1, $\bar{X}$ = 85.38
T2, $\bar{X}$ = 90.78
T3, $\bar{X}$ = 88.56
T4, $\bar{X}$ = 93.33
T5, $\bar{X}$ = 89.22

**T1, $\bar{X}$ = 71.00
T2, $\bar{X}$ = 73.67
T3, $\bar{X}$ = 75.44
T4, $\bar{X}$ = 72.00
T5, $\bar{X}$ = 76.00

Group means on the Metropolitan Readiness Test (Pre) and the Metropolitan Achievement Test (Post) are presented in Table 6.

A summary of an analysis of covariance on these scores is shown in Table 7 and indicates a statistically significant difference between groups ($F = 10.244$, p 0.001).

Table 6

Pretest Scores on the Metropolitan Readiness Test and Posttest Scores on the Metropolitan Achievement Test

Group		Pretest	Posttest
T1	Mother Involved Cognitive	27.29	62.47
T2	Child Centered Cognitive	37.16	98.05
T3	Mother Involved Physical Training	36.83	66.05
T4	Local Control	32.27	69.11
T5	Distal Control	47.55	72.33

Table 7

Summary of Analysis of Covariance of Metropolitan Achievement Test Scores (Using Metropolitan Readiness Test Scores as Covariants)

Source	df	MS	F	p
Error	83	401.00		
Groups	4	4108.21	10.2444	0.001
Total	87			

This difference was further analyzed using a Newman Keuls (Winer, 1962) procedure and the results are presented in Table 8.

Table 8

Newman Keuls Sequential Comparison of Between Adjusted Group Means on Metropolitan Achievement Test

Order	5	3	4	1	2
Group	Distal Control	Mother Involvement Physical Training	Local Control	Mother Involvement Cognitive	Child Centered Cognitive
Mean (Adjusted)	55.26	65.28	75.26	76.19	96.77
5		10.02	20.00*	20.93*	41.51*
3			9.98	10.91	31.49*
4				.93	21.51*
1					20.58*
2					

r	2	3	4	5
*.95, r$\sqrt{\text{MS error}/n}$	13.36	16.04	17.65	18.78

The analysis revealed the Cognitive Child Centered (T2) to be superior to all other groups (p .05) and Cognitive Mother Involved (T1) and Local Control (T4) superior to Distal Control (p .05).

Pretest scores on each category of the Maternal Teaching Style Instrument were initially analyzed to determine if maternal behavior varied as a function

of the child's sex. The results of these analyses failed to reveal statistically significant differences by sex on any of the behavior categories.

Raw score means for verbal categories on the pre and post administration of the Maternal Teaching Style Instrument are presented in Table 9. Analyses in two of the seven verbal categories were significant.

Table 9

Raw Score Means for Verbal Categories of the Maternal Teaching Style Instrument

Category	T 1		T 2		T 3		T 4		T 5	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Positive Feedback	7.94	13.05	13.66	13.33	5.77	9.72	10.27	10.05	6.44	6.27
Negative Feedback	8.41	6.00	10.77	6.00	5.22	3.72	9.77	5.88	7.27	4.55
Direction	42.41	42.94	60.27	49.27	39.05	40.66	48.22	41.83	40.83	32.61
Questioning	3.64	1.00	1.11	1.11	1.83	1.72	2.11	1.50	3.05	2.94
Information	1.00	3.64	2.61	2.61	2.11	1.88	1.44	2.05	1.11	1.00
Verbal Total	64.47	67.94	89.88	74.22	53.77	58.00	72.33	67.50	59.00	48.22
Cue Label	30.52	30.52	23.61	23.50	31.77	28.72	23.88	15.83	19.61	14.66

Table 10 shows a summary of an analysis of covariance of Question responses and indicates a significant difference between groups ($F = 2.685$, $p < .05$). Further analysis using a Newman Keuls procedure is reported in Table II and shows that Cognitive Mother Involvement group (T1) is significantly lower in this category than all other groups.

Table 10

Summary of Analysis of Covariance of Question Responses on Maternal Teaching Style Instrument

Source	df	MS	F	p
Error	83	5.01		
Groups	4	13.45	2.685	0.03
Total	87			

Table 11

Newman Keuls Sequential Comparison of Between Adjusted Group Means of Question Responses on Maternal Teaching Style Instrument

Order	1	4	2	3	5
Group	Mother Involvement Cognitive	Local Control	Child Centered Cognitive	Mother Involvement Physical Training	Distal Control
Mean (Adjusted)	.15	1.64	1.90	2.04	2.48

1	1.49*	1.75*	1.89*	2.33*
4		.26	.40	.84
2			.14	.58
3				.44
5				

r	2	3	4	5
*.95, $r\sqrt{\text{MS error}/n}$	.67	.80	.88	.94

Significant differences were also found in Information responses (Table 12). Further analysis (Table 13) showed Cognitive Mother Involvement group (T1) higher in this category than Cognitive Child Centered (T2), Physical Training Mother Involved (T3) and Distal Control (T5).

Table 12

Summary of Analysis of Covariance of Information Responses on Maternal Teaching Style Instrument

Source	df	MS	F	p
Error	83	8.12		
Groups	4	25.36	3.121	0.01
Total	87			

Table 13

Newman Keuls Sequential Comparison of Between Adjusted Group Means of Information Responses on Maternal Teaching Style

Order	3	5	2	4	1
Group	Mother Involvemean Physical Training	Distal Control	Child Centered Cognitive	Local Control	Mother Involvement Cognitive
Mean (Adjusted)	1.41	1.58	1.60	2.28	4.35
3		.17	.19	.87	2.94*
5			.02	.70	2.77*
2				.68	2.75*
4					2.07*
1					

r	2	3	4	5
*.95, r/$\overline{\text{MS error}}$ /n	.85	1.02	1.12	1.20

Raw score means for non-verbal categories (Gesturing + Physical Contact) on the pre and post administration of the Maternal Teaching Style Instrument are presented on Table 14. Analyses were significant in two out of four of the non-verbal categories. The analysis of non-verbal Positive Feedback responses revealed significant between group difference (F = 9.674, p .001) (Table 15).

Table 14

Raw Score Means for Non-Verbal Categories of the Maternal Teaching Style Instrument

Category	T 1		T 2		T 3		T 4		T 5	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Positive Feedback	5.41	7.82	10.50	1.22	9.05	6.11	9.33	5.88	3.16	4.11
Negative Feedback	8.82	3.64	10.72	1.88	8.11	3.33	10.16	3.55	6.50	3.44
Direction	14.23	12.82	14.38	11.83	11.38	14.55	11.94	10.77	14.16	13.61
Total	28.47	24.29	35.61	14.94	28.55	24.00	31.44	20.22	23.83	21.16

Table 15

Summary of Analysis of Covariance of Non-Verbal Positive Feedback Responses on Maternal Teaching Style Instrument

Source	df	MS	F	p
Error	83	13.51		
Groups	4	130.71	9.674	0.001
Total	87			

Again using a Newman Keuls procedure for further analysis (Table 16) the Cognitive Mother Involvement (T1) score was significantly greater than all other groups and all other groups were greater than the Cognitive Child Centered group (T2).

Table 16

Newman Keuls Sequential Comparison of Between Adjusted Group Means of Non-Verbal Positive Feedback Responses on Maternal Teaching Style Instrument

Order	2	5	4	3	1
Group	Child Centered Cognitive	Distal Control	Local Control	Mother Involvement Physical Training	Mother Involvement Cognitive
Mean (Adjusted)	.60	5.01	5.51	5.79	8.26

2	4.41*	4.91*	5.19*	7.66*
5		.50	.78	3.25*
4			.28	2.75*
3				2.47*
1				

r	2	3	4	5
*.95, r/$\sqrt{\text{MS error}/n}$	.6503	.7593	.8177	.8606

Analysis of the Overall Number of Non-Verbal responses revealed significant between group differences. The summary of this analysis is presented in Table 17. Between group differences on this category were significant ($F = 5.554$, p .001). Subsequent analysis shown in Table 18 indicated that the Mother Involvement groups (T1, T3) and the Distal Control (T5) were superior to the Local Control group (T4) and the Cognitive Child Centered group (T2). Further, the Local Control group (T4) was superior to the Cognitive Child Centered group (T2)

Table 17

Summary of Analysis of Covariance of Total Non-Verbal Response on Maternal Teaching Style Instrument

Source	df	MS	F	p
Error	83	70.52		
Groups	4	391.00	5.554	0.001
Total	87			

Table 18

Newman Keuls Sequential Comparison of Between Adjusted Group Means of Total Non-Verbal Response on Maternal Teaching Style Instrument

Order	2	4	5	3	1
Group	Child Centered Cognitive	Local Control	Distal Control	Mother Involvement Physical Training	Mother Involvement Cognitive
Mean (Adjusted)	13.08	19.65	22.94	24.32	24.64

2	6.57*	8.86*	11.24*	11.56*
4		3.29*	4.67*	4.89*
5			1.38	1.70
3				.32
1				

r	2	3	4	5
*.95, r/$\overline{\text{MS error /n}}$	1.64	1.92	2.07	2.18

Overall raw score means (verbal and non-verbal) are presented in Table 19. Only the Analysis of Total Positive Feedback responses was significant (F = 4.265, p .003). A summary of this analysis is presented in Table 20.

Table 19

Raw Score Means for Overall Number of Responses on the Maternal Teaching Style Instrument

Category	T 1 Pre	T 1 Post	T 2 Pre	T 2 Post	T 3 Pre	T 3 Post	T 4 Pre	T 4 Post	T 5 Pre	T 5 Post
Positive Feedback	13.35	20.88	24.16	14.55	14.83	15.83	19.61	15.94	9.61	10.38
Negative Feedback	17.23	9.64	21.50	7.88	13.33	7.05	19.94	9.44	13.77	8.00
Direction	56.58	55.76	74.66	61.11	50.44	55.22	60.16	52.61	55.00	46.22
Total	92.88	92.23	125.50	89.16	82.33	82.00	103.77	82.72	82.83	69.38

Table 20

Summary of Analysis of Covariance of Total Number of Positive Feedback Responses on the Maternal Teaching Style Instrument

Source	df	MS	F	p
Error	83	65.91		
Groups	4	281.13	4.265	0.004
Total	87			

A summary of further analysis is presented in Table 21. The results of this analysis indicates that the Mother Involved Cognitive group was superior to all other groups and that the Mother Involved - Physical Training group was superior to the Distal Control group.

Table 21

Newman Keuls Sequential Comparison of Overall Total Number of Positive Feedback Responses on the Maternal Teaching Style Instrument

Order	2	5	4	3	1
Group	Child Centered Cognitive	Distal Control	Local Control	Mother Involvement Physical Training	Mother Involvement Cognitive
Mean (Adjusted)	11.49	13.02	14.66	16.42	22.05
2		1.53*	3.17*	4.93*	10.56*
5			1.64	3.40*	9.03*
4				1.76	7.39*
3					5.63*
1					

	r	2	3	4	5
*.95, r/$\sqrt{\text{MS error}/n}$		1.44	1.68	1.81	1.90

DISCUSSION

One or two general comments should be made before discussing the results with respect to the specific questions raised in this study.

The first point relates to the intensity or lack of intensity of the treatment. The project ran for a period of eight months. The total number of hours of contact between home visitor and target family was usually 30, but in a few cases was only 27 hours. Even though the idea in the Mother Involvement groups (T1 & T3) was to teach the mother to follow up on each of the home visit activities, the one hour per week that the home visitor spent in each home only began to be effectively supplemented by the mother as the mother's ability to follow up progressed. In some cases the mothers progressed rapidly, while in the case of others progress was more gradual. Coupled with the relatively brief duration of the project, this slow start tended to dilute the treatment. Further attenuation was built into the study as a result of hiring and training community residents, with no previous teaching experience, as home visitors. While this plan did much to foster community sanction for the project, it also meant that during the initial phase of the study, the impact of the home visits was less than optimal. Again, some of the home visitors progressed in their training more rapidly than others but, overall, we did lose some time at the outset.

On balance, it appears that the intensity, duration, and quality of this home visitor project were such that the potential effects of the intervention were dwarfed in the face of the massive and cumulative effects of the living conditions of most of the low income families in the target population.

The second general point which also seems to have a bearing on the

interpretation of the results relates to the academic aptitude of the target group children at the beginning of the study. While it was expected that the selection procedure would result in a sample with an average IQ somewhere at the lower end of the normal range, it was not anticipated that the overall IQ level would be as low as it turned out (about 80 on the Binet). It may be that the chances of making a change with children at this measured level of functioning are less than in the case of a group functioning at a higher level. The comparison of the gains of an initially high IQ group and an initially low IQ group failed to support the premise that brighter children profit more from treatment than those who are functioning at a lower level, but the value of this analysis was limited inasmuch as the mean IQ for the high group was only 90.

One generalization that seems to emerge from this somewhat bleak picture is that the probability of bringing about a substantial change in academic aptitude and maternal teaching style in the treatment groups was minimal. From this vantage point, even the smallest changes in the desired direction deserve to be viewed as noteworthy accomplishments.

Returning to the questions that were raised in the study, the first pertained to whether mother participation in the home visits had an effect upon the child's academic aptitude and upon her teaching style.

Hypothesis 1 There will be no significant difference in academic aptitude, measured by the Stanford-Binet and Metropolitan Achievement Tests, between a group of first grade children who have taken part in a home visitor program in which mother participation is encouraged and a group of similar children whose mothers are not encouraged to participate.

In comparing the scores of the Mother-Involved Cognitive group (T1) and the Child-Centered Cognitive group (T2), the most striking finding was the marked superiority of the latter group on the Metropolitan Achievement Test.

The total mean score for this group on the Metropolitan was 98.05 while the mean scores of the other groups ranged from 62.47 to 72.33. The scores on the Binet did not reflect this superiority, but the Child-Centered group did experience the greatest gain from pretest to posttest (+4.66) while only the scores of the Distal Control group (T5) decreased (-.89). The Binet and Metropolitan are usually highly related and the failure of the Child-Centered group to achieve Binet gains commensurate with Metropolitan gains tends to cast some suspicion on the results. However, investigations of the input from the school and the extent of deprivation in the home revealed no systematic differences favoring Child-Centered group children in terms of quality of teaching in the school, specific "teaching to the test" or environmental conditions in general (Table 1). While this type of finding has been reported before (Weikart, 1967) and some (Miller, 1968) have maintained that achievement tests are more sensitive to changes which occur in programs of this nature, the superiority of the Child-Centered group should be interpreted cautiously.

Defending the absolute validity of these data is a bit of a problem, whereas finding reasons to explain the gains is an easier task. In contrast to those groups in which a great deal of time and effort was devoted to the mother, the home visitor's attention in the Child-Centered group was wholly focused on the child. This allowed for more input since the home visitor was usually able to complete the entire lesson and often had time for review. It permitted the child to relate to a warm and supportive adult in a context which was designed to insure success.

It would be inaccurate to propose that the mothers in the Child-Centered Cognitive group did not become involved in the treatment. The home visitors in this group frequently reported indications that these mothers were often at home during the visit and were in many cases working with their children after the home visit. An example of this occurred when a child was having difficulty in answering a question posed by the home visitor, and her mother yelled from the next room, "Now child, you knew that yesterday. Now speak up!". Consequently, the differences in mother participation in the Mother-Involvement group and the Child-Centered group were not that mother participation occurred in one group and not in the other, but rather that the mothers in the latter group did not see themselves as focal points of the project and perhaps escaped the negative reactions which could be triggered by such a prominent position, and that these mothers were able to become involved in and withdraw from follow up activities as their skills, energy and free time permitted.

The home visitors in the Mother-Involved Cognitive group (T1) spent increasingly less time in direct interaction with the child and increasingly more time trying in an indirect manner to influence the child by working with and through the mother. To develop this a little further, the mothers who were encouraged to participate in the visits were initially uncomfortable in a teaching role. Discussions with T1 mothers indicated that this experience tended to dredge up unpleasant memories of their own school years. Being uncomfortable, these mothers often applied a great deal of pressure on their children during and after the visits. The learning environment in the latter group was often characterized by the mother's pronounced discomfort and ambivalence toward the demands of the teaching role. It is quite possible that this situation had a negative effect on the child.

Perhaps the interaction of parental acceptance of the program and the relaxed and periodic mother involvement resulted in a more optimal learning environment for the Child-Centered Cognitive group children than was the case for the Mother-Involved Cognitive group.

Hypothesis 2 Participating mothers will emit significantly more Cue Label, Positive Feedback, Direction, Information, Question and Overall Total number of responses and significantly less Negative Feedback responses on the Maternal Teaching Style Instrument than non-participating mothers.

One principle which seemed to emerge from the data was: if the goal is to instigate changes in the child, focus emphasis should be placed on working directly with the child. But did this also apply to the mother? That is, if the goal is to bring about changes in the mother, should the emphasis be focused on the mother? The MTSI data give partial support to this notion. Analyses of fifteen categories of maternal behavior yielded five significant between group differences. In three of these categories the Mother-Involved Cognitive group (T1) was superior: Information responses, Non-Verbal Positive Feedback responses and Overall Number of Positive Feedback Responses.

The thrust of the visits in the Mother-Involved Cognitive group was designed to increase the overall amount that the mother interacted with the child generally and also to modify certain of the mothers' specific teaching behaviors (e.g. positiveness, questioning, information giving). In the course of their training the home visitors became quite proficient in the ability to interact both verbally and non-verbally with young children, to give specific feedback emphasizing the positive, and to give the child sufficient information to enable successful performance.

Initially, the home visitors found it difficult to depart from their lesson plans. Their feedback responses were rigid and sounded artificial. As the training progressed the home visitors acquired skills which permitted them to play a greater role in the formulation of the lesson plans, until during the latter part of the project they were each writing lesson plans independently. Their greater skill, independence and feeling of competence was reflected in their ability to be more flexible. Departure from plans became frequent and the home visitors became more comfortable during the visits and thus more able to be aware of the behavior of the mother and child. The home visitors' reinforcement responses seemed to become more genuine and more specific to the actual behavior of the mother and child.

As the home visitors progressed in their ability to formulate and evaluate plans, and to give specific positive feedback, the home visitor training sessions began to focus on the elaboration of their teaching repertoires to include questioning and information giving. While there was hardly enough time to devote to these aspects of their teaching styles, it does seem that the home visitors were able to provide enough of a model of information giving that mothers in the Mother-Involved Cognitive group (T1) saw the importance of this behavior and incorporated it into their own teaching repertoires. The same phenomenon did not occur with respect to T1 mothers' questioning responses. The frequency of questioning responses remained relatively stable for all of the groups except T1, so that the superiority of these groups over T1 was actually due to a decline in the frequency of questioning on the part of the T1 mothers, rather than to an increase in the other groups. Speculating on the basis of the experience of training the home visitors, who were in most ways similar to the target group mothers, this writer suspects that questioning responses were extremely difficult for them to incorporate in their teaching repertoires.

The T1 mothers' urge to help the child to respond correctly seems to have worked against the frequent emission of questions which may have been viewed as prompting unnecessary delays.

To summarize, holding the content of the home visits constant, the contrast between the Mother-Involved and Child-Centered group indicated that in terms of increases in the measured academic aptitude of the child, the latter approach appeared more effective, but in terms of the modification of the teaching style of the mother, at least in a limited sense, the former approach was more effective.

Hypotheses 3 The academic aptitude of a group of first grade children who have been exposed to home visiting activities designed to supplement the cognitive aspects of the first grade curriculum will be superior to the academic aptitude of a similar group of first graders who are exposed to home visiting activities designed to promote gross motor development.

Whether mother involvement in the home visitor project was built around cognitive activities or gross motor activities resulted in no statistically significant differences on measures of the child's academic aptitude. However changes from pre to post administration on the Metropolitan did favor the cognitive activity group. The adjusted mean score on the Metropolitan for T1 was 76.19, while for T3 it was 65.28. The adjusted mean score on the Binet for T1 was 82.45 while for T3 it was 82.59. These differences are not sufficient to warrant favoring one type of content over another, at least as these approaches pertain to the child. Taking a cost-benefit approach it is important to note however, that it was much easier and took less time to prepare the home visitors for physical training activities than for the cognitive activities.

Hypothesis 4 There will be no significant differences in maternal teaching style between mothers who participate in cognitive activities and mothers who participate in gross motor activities.

As was indicated in the comparison of the Mother-Involved Cognitive group (T1) and the Child-Centered group (T2), the former was superior to all groups in Total Number of Positive Feedback Responses, Information Giving Responses, and Non-Verbal Positive feedback. However, with respect to the remaining MTSI categories, the adjusted mean scores of the mothers involved in cognitive activities were greater than those of mothers involved in physical training except in Overall Number of Direction responses. There seems to be an indication therefore, that the type of activity in which the mother engages has a bearing on changes in her teaching style in favor of the cognitive content.

The home visitors frequently tried to discover how the mothers were feeling with regard to the effectiveness of what was being done. While T1 and T3 mothers both began in a positive vein, as the weeks passed the latter group began to ask why they were not getting to color, paste, read, etc. as the T1 group members. (This is a good unobtrusive index of horizontal diffusion.) The Physical Training activities began to lose credibility. While this may be an indication of a "Rosenthal effect" (1966), every effort was made to support the credibility of the Physical Training approach since whether it was or wasn't more effective was an open question. A tentative but plausible conclusion might be that in order to gain the leverage needed to change maternal behavior one must begin with a believable program which includes clearly specified and logical means-ends relationships which relate to the stated objectives of the program.

Hypothesis 5 There will be no significant difference in academic aptitude between children in the Local and Distal control groups.

In order to test for diffusion effects, the scores from the Local (T4) and Distal (T5) Control groups were compared.

In terms of the child's academic aptitude, there were no significant differences between T4 and T5 on the Binet. The adjusted mean score on the Binet for T4 was 84.04 and for T5 was 80.70. The Local Control group was, however, significantly superior to the Distal Control on the Metropolitan. Again these results should be interpreted with caution, but it seems that the effects of the treatment did spread from the target group to the local controls.

There is a good chance that the home visit activities had some impact upon the teachers and the classroom activities in the classrooms which the treatment group children attended. The teachers in this school knew about the program, and in most cases were personal friends and/or past teachers of the home visitors. Teachers often inquired about the program. Teacher-home visitor conferences were frequent, but the home visitors refrained from identifying the treatment group children. Perhaps the teachers' classroom behavior was modified, in which case both treatment groups and local control groups children would be affected. The leverage which was gained in tapping into the existing relationship between the classroom teachers and the home visitors cannot be underestimated.

The fact that the treatment community was small and that most community members knew one another and interacted frequently might also have contributed to this apparent diffusion.

Hypothesis 6 There will be no significant differences in maternal teaching style between mothers in the Local and Distal control groups.

While the comparison of MTSI Categories for T4 and T5 revealed only one significant difference (Non-verbal Total in favor of T5), the Local Control mothers achieved higher (adjusted) mean scores on every MTSI category except Cue Label, Questioning, Non-verbal Negative Feedback and Non-verbal Direction. The lack of marked diffusion between mothers makes a great deal of sense, since exchanges between treatment and control group mothers were far less frequent than the exchanges which occurred between the home visitors, teachers, and children as described above.

CONCLUSIONS

The potential for generalization from the results of this study must be gauged in view of three relevant factors. One relates to the design of the study. Even though extensive investigations of the treatment communities revealed no outstanding differences in terms of size, socio-economic character and racial composition, it remains conjectural that the superiority of the Child Centered Cognitive group was due to the treatment. This predicament however, is not too far removed from the problems associated with defining treatment groups on the basis of broad socio-economic indices, teachers' judgements and the like. Complete control and isolation of experimental variables is extremely difficult when working with human subjects and almost impossible when the problems inherent in human research are multiplied by the lack of control over field research conditions. In any case, generalizations from this study would have been more defensible had all of the treatment groups been drawn from the same community.

The second point relates to the beginning aptitude level of the children in the sample. Although Havighurst (1965) reported IQ differences between middle and lower class children to be as high as 20 points, the average IQ level of the present sample seems to be consistently and atypically low. If the pre-intervention level of aptitude plays an important role in determining the effectiveness of the intervention, then it is logical to hold that intervention effectiveness would vary according to the aptitude level of the child. If this is so, the results of this study are defensible only when generalized to groups of children at a similar level of academic aptitude.

The third and last point refers to the geographical region in which the study was done. It has been maintained (Coleman, 1966) that southern schools,

particularly those serving predominantly black non-metropolitan areas, are less adequate than schools in other regions of the country. Tennessee ranks 45th in per pupil expenditure (Lerner, 1968). It is reasonable to maintain that the child's academic aptitude, as measured in this study was, among other things, a product of an interaction between the home intervention and the formal school program. If this is so, the results of this study are defensible only when generalized to groups of children who attend schools with characteristics similar to those in this study.

With these three limitations in mind, the following conclusions may be drawn. The results of the present study indicate that given the child's increased academic competence as a goal, it appears that home intervention programs should focus all efforts on the child using activities which supplement what is done in the public school. On the other hand, given the child's increased and sustained competence as a relatively ultimate goal, and the modification of the mother's manner of dealing with the child as an intermediate step toward that goal, then, it appears that such programs should concentrate attention on the mother again using activities which complement the cognitive aspects of the public school program.

Synthesizing these possibilities, one might devise a cognitive program which works to involve the mother by first demonstrating improvements in the child's behavior. The mother's active participation in this case would be gradual and in her own manner. Reinforcement for her efforts in terms of the child's behavior would be more probable than in the case of beginning to work with mother and child simultaneously. Changes in maternal teaching behavior could then be approached in a more unobtrusive manner over a fairly extended period of time.

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Appendix A

Sample Lesson Plan for the Mother Involved-Cognitive Group (T1)

47/48

HEAD START HOME VISITOR PROGRAM

Home Visitor:

Week: January 6, 1969

Mother Involvement

1. Entry - recalling suggestions made to mother during this period in the last visit, the HV will anticipate difficulty by assuming that the mother possibly did not follow through completely on her ideas for using home materials and events for teaching the child because the child was not in school during the recent holidays.
   a. Question to see if mother followed through on the specific suggestions which were made regarding the child's school work. If she did not, repeat the pitch again by discussing the child's school work and asking the mother how she might help.
   b. See if mother remembers suggestions which were made in regard to using ordinary household object and jobs to teach the child. Both HV and mother should be as specific as possible in discussing what the mother can do in this area to help the child. If she did nothing, find out why and try again - perhaps with a new suggestion. It is best if she is helped to make the suggestion herself.

2. Review the assignments with the mother and child. Christmas tree - look for - child's coloring, ornaments and packages with "M" and "S" words on them. Snowman - look for - child's coloring. Be sure to (1) reinforce the child for good work; (2) talk about the pictures with the child. This is a good time to use "I can't hear you" and "Would you say it like this" techniques; (3) find out how much mother was involved in the completion of the assignments.

3. Main Activity

   Home Visitor will give story book to mother and ask her to read it to her child. The mother will be told to first read using the pictures and then the words. HV will interrupt for: (1) concept development, (2) reinforcement of both child and mother; (3) language development and stimulation (see Home Visitor "Follow On Activities" for Week #1)

4. Dramatization

   Home visitor will discuss "acting out the story" with mother, target child and any siblings present. HV will ask mother to assign roles to each child and herself (HV will be given a role too!) The participants will then "act out" the story which was read by the mother.

Remember:

1. This should be fun. The mother and children may be shy and will look to HV for encouragement.

2. This should be flexible. Deviations from the story are not only allowed but encouraged.

3. All should be encouraged to "ham it up" and to fully emerce themselves in the role.

The dramatization will be an assignment for the mother. Set it up so they will practice - they can do the same story as today or select one read in past weeks - and put on a performance for HV next week.

5. Secondary Activity

a. Alphabet - Mimeographed materials - review "M" and "S". Elicit as many "M" words as child can give. Write each on colored paper and give to child. Do the same for "S". Give child envelope on which to hold new words. HV should review again the mother's opportunities to use ordinary household objects to teach letter-sound association. Use <u>specific</u> suggestion which you used last time and see if followed up. Introduce the letter "B" and have mother run through the activity. Give her little or no direction but remember to (1) reinforce mother and child; (2) make sure the mother is making association between letter and sound. Review letter lotto material (matching recognition and identification) if necessary.

b. Math

1. Number 2 (same fashion as Christmas week)
<u>For advanced children</u> - use addition mimeo
<u>For slower children</u> - continue to use lotto material, review only lowest process in which child has difficulty. That is, if he can match and recognize all the numbers then only go through identification. If he can match only do recognition and identification, etc.

6. Close

HV will review assignments with mother:
#1 - Dramatization of story
#2 - Alphabet - letter "B"
#3 - Review sight vocab words
#4 - Math Activity
HV will make sure mother understands assignments by handing her the cards and asking her to tell about each. Get as much detail as possible and clarify any confusion. Discuss ways which mother said she would help child with (1) homework; (2) color, size, shape, position, number name, practice using ordinary household objects and activities. Show how this will take little or no extra time.

Appendix B

Sample Lesson Plan for the Mother Involved
Physical Training Group (T3)

50/51

HEAD START HOME VISITOR PROGRAM

Home Visitor:

Week: November 18, 1969

1. Entry: Before doing any of the exercises, it is important that the H. V. sits down and talks to the mother. Areas to be covered: a) How has mother been helping child with exerceses during the week when the H. V. is not there, b) does mother see any improvement in the child's ability to do the exercises, c) does she think that these exercises are helping the child in his school work (how?). If mother is not helping child with the assignments then H. V. should attempt to motivate her to do so by explaining that the coordination that her child is developing might be very important for school success.

2. Conditioning Activities. The Home Visitor will demonstaate activity to the child, accompanying each action with appropriate words. Have child and mother imitate each step done by Home Visitor.

A) Reach To The Sky

1. Stand on tiptoe with arms outstretched over head, saying "Reach to the sky". Emphasize strong upward stretch.

2. Bend at waist and touch toes with fingers, saying "touch your toes". Emphasize straight knees.

3. Squat, placing knees between elbows, saying "bend your knees".

4. Wiggle nose, saying "wiggle your nose".

5. Stand up straight, saying "stand up tall".

6. Extend arms to both sides, saying "arms out straight". Emphasize keeping arms level.

7. Twist trunk of body from side to side, saying "Twist and turn like a garden gate".

B) I'm A See Saw

1. Jump to stride position, feet apart with arms on hips, saying I'm a see-saw".

2. Extend arms outward, with palms facing up. Keep arms in a straight line from fingertip to fingertip, saying "...in the park".

3. Keeping arms in a straight line, swing them up and down, imitating a see-saw, four times, accompanying each swing with a word - 1) "Children..." 2) "ride..." 3) "til almost..." 4) "dark."

4. Drop to floor in a sitting position, landing lightly, saying "Then off they get..."

5. Stand up and run in place, saying "and home they run."

C) Jumping Jack

1. Jump to stride position, feet apart with arms on hips, saying "Jumping..."

2. Jump with feet back together, saying "Jack".

3. Repeat jumping to stride position and back, 2-1/2 times, saying "Jumping...Jack... out... in... out", landing with feet apart.

4. Jump up, keeping hands and feet in same position, saying "Jumping..."

5. Jump with feet back together, saying "Jack".

6. Repeat, jumping to stride position and back one time, saying "Jumping...Jack".

7. Trun completely around once, with hands on hips, saying "turn yourself about".

3. Imitation Stunt Activities: The Home Visitor will explain the intention of and physical position of each stunt activity to the mother and child, letting mother assist him into the position if necessary.

A) Jack-In-The-Box. Have the child stoop and jump high in the air. Have him clap his hands above his head and return to a stooping position. Repeat 5 times.

B) Object Balance. Have child place object (e.g. school book) on his head with arms on his hips. Have him walk around the room.

C) Puppy Dog Run. Have child place hands on floor with knees and elbows slightly bent. Have him bring his right hand and left foot forward at the same time, then left hand and right foot. Repeat several times, using short, small steps.

D) Human Rocker. Have child lie face down on floor. Instruct him to grasp his ankles with his hands and rock to and fro. A rigid curve of chest and stomach must be kept.

4. New Activities

A. Material: Rubber ball

1. Bouncing

Child will bounce the ball--catch it - and bounce it again-catch it - etc. (20 times) Try to motivate the child to not miss or drop the ball at all. "See how many times you can catch the ball without dropping it".

Child will bounce the ball without catching it. Motivate the child as above. (3 tries)

H. V. will throw the ball to the child (10 x). "Let's see how many times you can catch the ball"

B. Material: Jump rope

2. Jumping

Child will jump - stop - jump - stop, etc. frontwards (10 times), backwards (10 times)

Child will jump without stopping until he misses. "Let's see how many times you can jump without missing".

5. Exercises:

A. Jump high 10 x
B. Broad jump 3 x
C. Tip toes 10 x
D. Tip toes and spread arms 10 x
E. Twirl around
F. Jumping jack 10 x
G. Touch toes 10 x
H. Crawl over, under, through a chair
I. Walk a line forward and back 3 x

6. Close: Review child's progress with mother. Praise mother and child for performance. Award star to child and review child's progress chart. Discuss home assignment. Finally, recheck time and day of next visit.

Appendix C

Presentation of Program to Different Treatment Groups

HEAD START - HOME VISITOR PROGRAM

Introduction to Mother in Curriculum Group*

Essential Points to be Discussed

"Mrs. _____, I would like to tell you about the home visitor program. I am sure that you know that what happens to your child at home will have a very important influence on his (her) school work. (PAUSE LONG ENOUGH FOR THE MOTHER TO REACT TO WHAT YOU HAVE SAID.)

Since (child's name) attended Head Start this past summer, he (she) has probably gotten off to a good beginning in school. I am sure that you would like to continue this good start, wouldn't you? (PAUSE AND LOOK TO MOTHER FOR A RESPONSE.)

The people at Peabody College in Nashville have planned this home visitor program to try to help your child do better in school and they have trained me to be a home visitor. If you agree to participate, I shall come to your home once a week for one hour. I will work with you and (child's name) during that hour. I will also leave assignments for you to do with (child's name) during the week. So, it is very important that you be here when I come each week and that you do the assignments each day of the week. (PAUSE FOR QUESTIONS.)

Do you ever read to (child's name) ?

Do you have any children's books in your home?

Does (child's name) ever ask you to read to him (her)?

One of the activities in the home visitor program is Story Reading. I am going to read (child's name) a story now. You see whenever I read a story I try to get (child's name) as close to me as possible. (IF THERE ARE OTHER CHILDREN PRESENT, ASK THEM IF THEY WOULD LIKE TO LISTEN AND HAVE THEM SIT IN FRONT OF YOU. MAKE SURE THAT THE MOTHER IS SEATED ON THE OTHER SIDE OF THE TARGET CHILD.)

Story Reading

1. Picture read
2. Reread using text
3. Discuss story - sizes, shapes, positions, colors, characters
4. Puzzle

* A letter describing the home visitor program was sent to each of the potential target families before this home visitor presentation was made.

This is only one of the activities which we might do together. Other activities might be cutting and pasting, coloring, and some arithmetic. We would like to use many things that you already have in your home to teach (child's name). We might even want to use house cleaning, laundry, meal planning, etc. to help (child's name) learn.

Closing Remarks

Ask mother whether or not she would be interested in this type of program and answer any questions she raises. Try to stress the central role which she will gradually begin to play during and after the visits. If she agrees to participate:

Mrs._____, here is a book which tells the same story we just read. I would like you to read it to (child's name) twice this week. One time go through the book without reading the words and tell the story by the pictures. The second time read the story using the words. Try to see how much of the story (child's name) remembers by asking him (her) to tell you the story.

I'll be back again next week to see how well you have done and to do some more things with you and (child's name).

Set time and date for visits.

If the mother disagrees then try to determine why she doesn't want to participate. If her unwillingness is due to a misinterpretation of what you have said, try to clarify the misunderstanding. If the mother's unwillingness persists, convey to her that you will be visiting in the neighborhood and would be glad to return if she changes her mind.

HEAD START - HOME VISITOR PROGRAM

Introduction to Mother in Child Centered - Cognitive Group*

"Mrs. _____, I would like to tell you about the home visitor program. I am sure that you know that what happens to your child at home will have a very important influence on this (her) school work. (PAUSE LONG ENOUGH FOR THE MOTHER TO REACT TO WHAT YOU HAVE SAID.)

Since (child's name) attended Head Start this past summer, he (she) has probably gotten off to a good beginning in school. I am sure that you would like to continue this good start, wouldn't you? (PAUSE AND LOOK TO MOTHER FOR A RESPONSE.)

The people at Peabody College in Nashville have planned this home visitor program to try to help your child do better in school and they have trained me to be a home visitor. If you agree to participate, I shall come to your home once a week for one hour. I will only need to work with (child's name) during that hour. I will also leave assignments for (child's name) to do during the week. You do not have to participate when I come and we don't mind if you don't help (child's name) do the assignments.

One of the activities in the home visitor program is Story Reading. I would like to read (child's name) a story now.

Story Reading

1. Picture read
2. Reread using text
3. Discuss story - sizes, shapes, positions, colors, characters
4. Puzzle

Closing Remarks

Ask mother whether or not she would be interested in participating in this type of program and answer any question which she raises.

Set time and date for visit.

If the mother disagrees then try to determine why she doesn't want to participate. If her unwillingness is due to a misinterpretation of what you have said, try to clarify the misunderstanding. If the mother's unwillingness persists, convey to her that you will be visiting in the neighborhood and would be glad to return if she changes her mind.

* A letter describing the home visitor program was sent to each of the potential target families before this home visitor presentation was made.

HEAD START - HOME VISITOR PROGRAM

Introduction to Mother in Physical Training Group*

Essential Points to be Discussed

"Mrs._____, I would like to tell you about the home visitor program. I am sure that you know that what happens to your child at home will have a very important influence on his (her) school work. (PAUSE LONG ENOUGH FOR THE MOTHER TO REACT TO WHAT YOU HAVE SAID.)

Since (child's name) attended Head Start this past summer, he (she) has probably gotten off to a good beginning in school. I am sure that you would like to continue this good start, wouldn't you? (PAUSE AND LOOK TO MOTHER FOR A RESPONSE.)

The people at Peabody College in Nashville have planned this home visitor program to try to help your child and they have trained me to be a home visitor. If you agree to participate, I shall come to your home once a week for about one hour. I have been trained to use a new approach to help (child's name) do well in school. I will be training (child's name) to do exercises which should help him develop better motor coordination and a good concept of himself (herself). Improvements in these areas might help him (her) do better in school. It is very important that you be here when I come each week and that you watch what I do, so you can do the same activities with (child's name) during the week when I'm not here.

One of the activities in the home visitor program is

ACTIVITY

Closing Remarks

Ask mother whether or not she would be interested in this type of program and answer any questions she raises. If no questions are raised, then discuss some of the concerns you think she might be experiencing, e.g., "what does all this have to do with learning?" If she agrees:

Mrs._____, I would like you to do each one of these exercises with (child's name) during this week. When I come back next week we will review this week's activities and then go on to some new ones. Are you sure you remember each activity? (PAUSE FOR A RESPONSE.) Here are some cards with an activity written on each one. These will help you remember what to do.

*A letter describing the home visitor program was sent to each of the potential target families before this home visitor presentation was made.

Repeat assignment.

Set time and date for visits.

If the mother disagrees then try to determine why she doesn't want to participate. If her unwillingness is due to a misinterpretation of what you have said, try to clarify the misunderstanding. If the mother's unwillingness persists, convey to her that you will be visiting in the neighborhood and would be glad to return if she changes her mind.

Appendix D

Directions for Administration for the Maternal Teaching Style Instrument

60/61

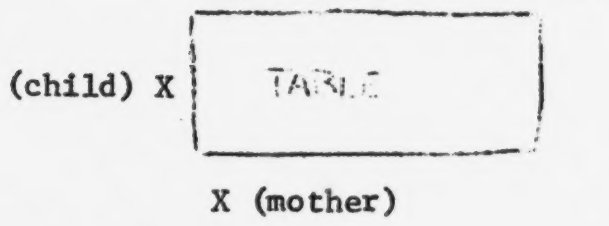
MATERNAL TEACHING STYLE INSTRUMENT (MTSI)

Directions for Administration

1. Procedure

a) Arrange all cards and corresponding figures on table at Observer's left.

b) Seat mother and child at other table.



c) Place Card #1 on the table in front of the child.

d) Place the figures corresponding to Card #1 in a random order next to the card.

e) Next say:

> This is a matching game. I want (child's name) to put each figure that is in front of him (her) on the card in the right place. I want you to help (child's name) to play this game well. You may help (child's name) in any way, for example, you might tell him (her) where to place a figure or show him (her) where to place a figure. But please do not pick up any of the figures. (To the child) (child's name) I do not want you to do anything until mommy tells you to do it. (To mother) please do not begin on any card until I say, "Begin! OK! Begin!"

f) After saying "Begin" start the stop watch.

g) Work on any card will be finished when:

1) the child has placed all of the figures on the card and seems to have finished; or

2) when two minutes have passed.

h) Remove the card and figures.

7

i) Repeat the same procedure for cards #2 through #6.

j) For card #7 give the mother the card marked #7 and the child the card marked #7c. Then say to the mother:

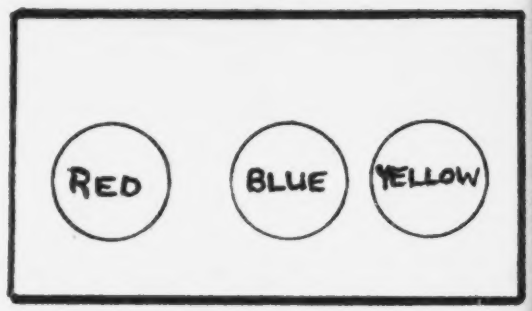
> "Do the same on this card as you have been doing, but be sure not to let (child's name) see your card. Remember, you are to help (child's name) play the game well. Try to get him to place the figures so that his card looks just like yours. Please don't begin until I say "Begin."

k) Repeat this procedure for cards #7 through #10.

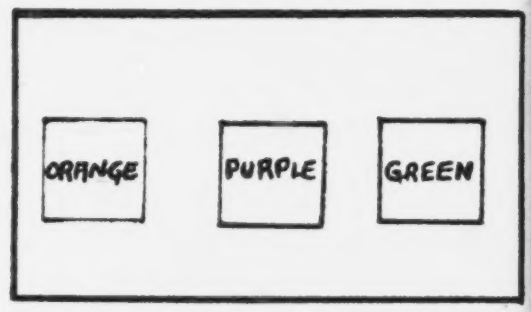
Appendix E

Maternal Teaching Style Instrument Materials

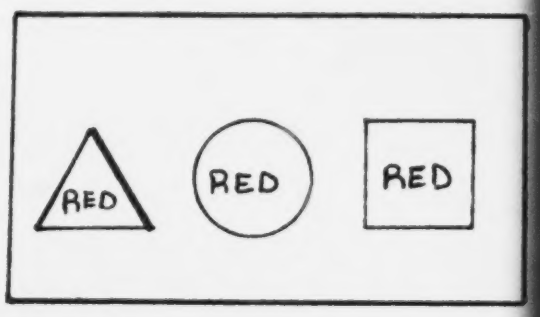
Card 1



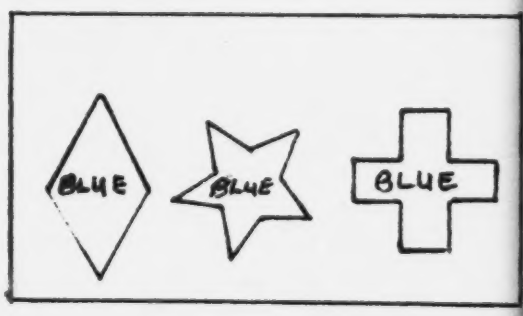
Card 2



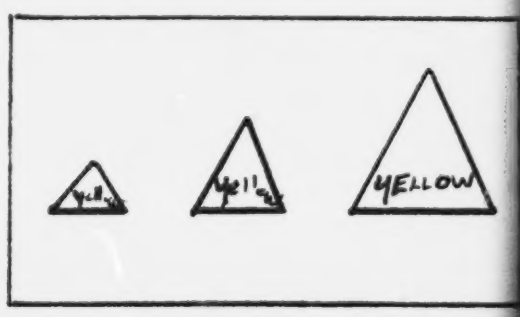
Card 3



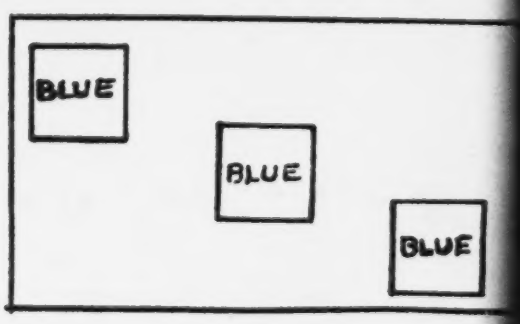
Card 4



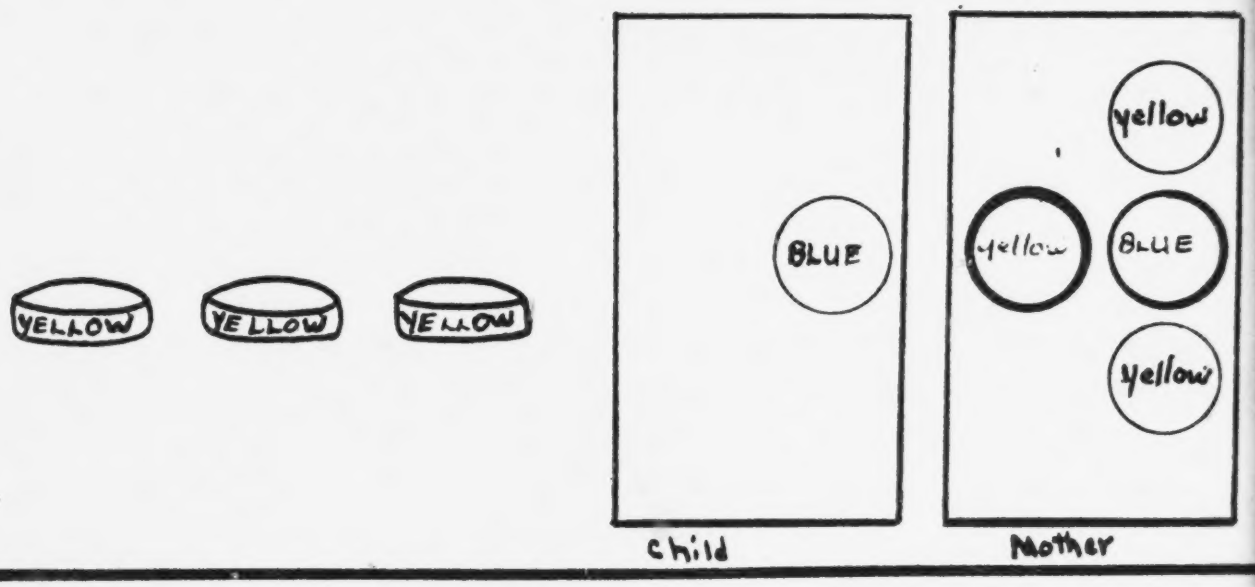
Card 5



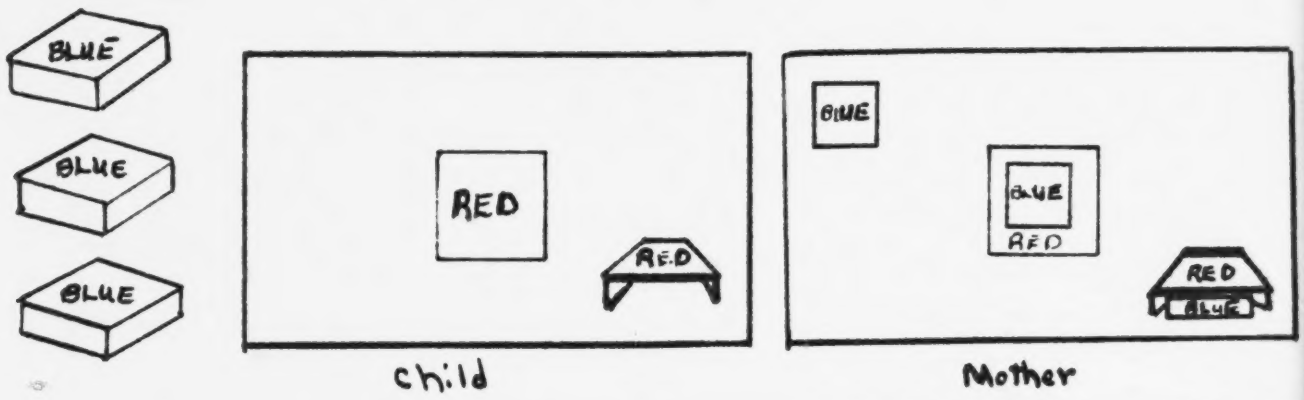
Card 6



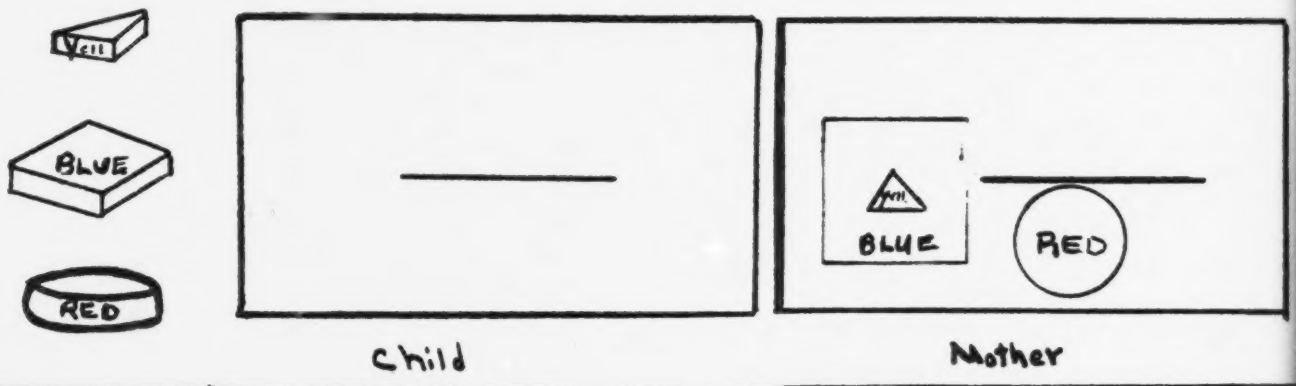
Card 7



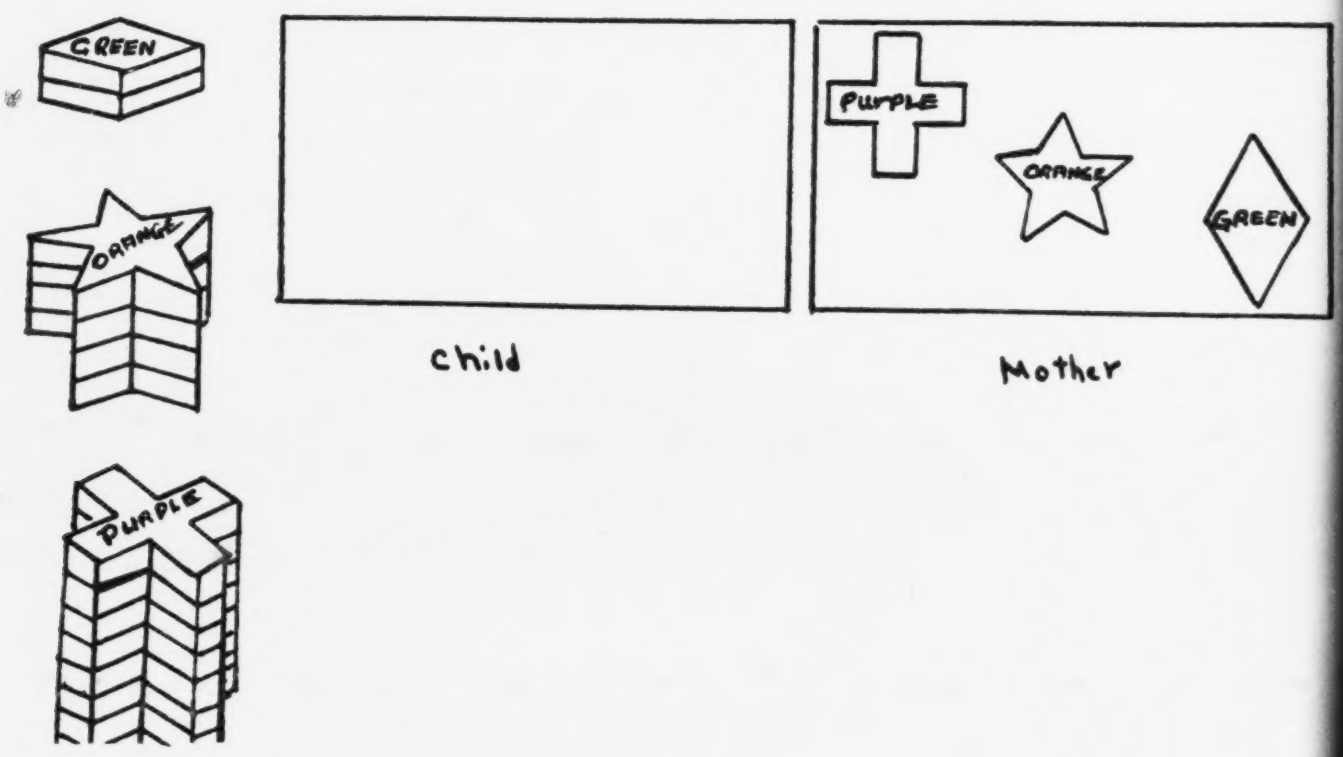
Card 8



Card 9



Card 10



Appendix F

Maternal Teaching Style Score Sheet

MOTHER-TEACHING STYLE
SCORE SHEET

Child's Name_____
Mother_____
Observer_____
Date_____

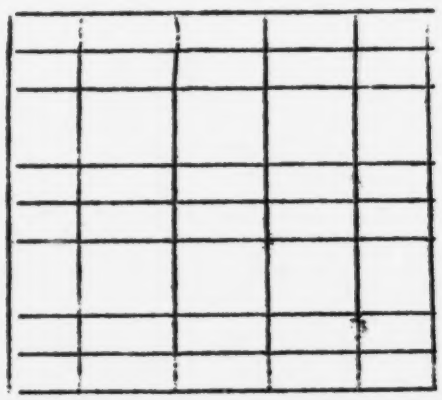
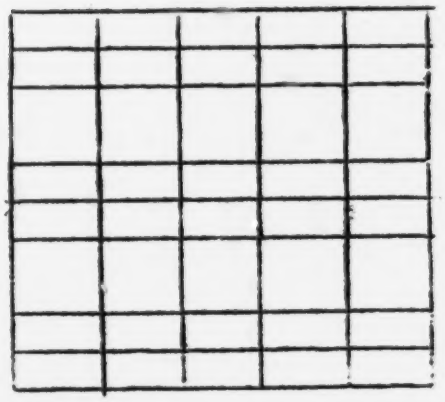
CARD 1

Cue Labels	Other Responses	Verbal Interaction	Non-Verbal Interaction
Red	2_____		
Blue	2_____		
Yellow	2_____		

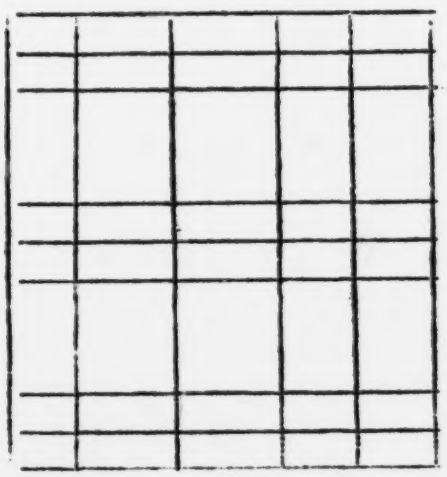
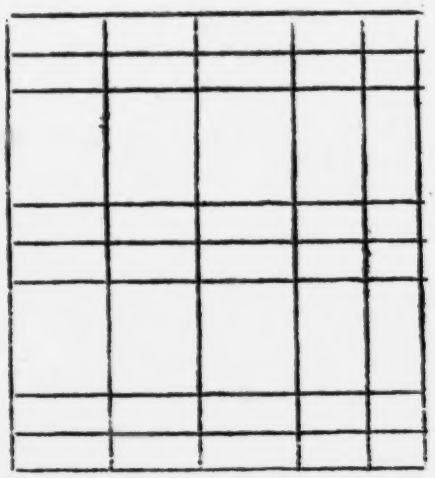
CARD 2

Cue Labels	Other Responses	Verbal Interaction	Non-Verbal Interaction
Green	2_____		
Orange	2_____		
Violet	2_____		

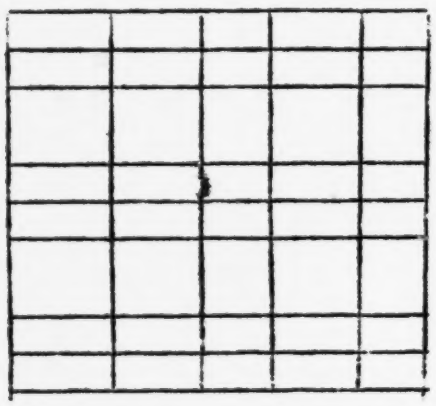
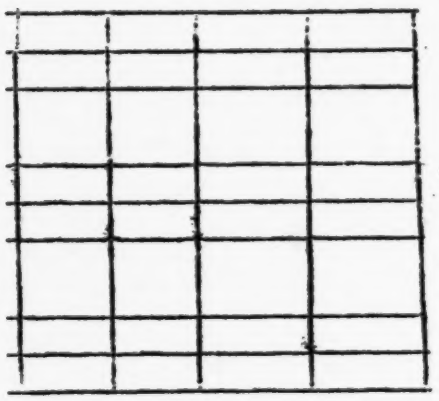
CARD 3

Cue Labels	Other Responses	Verbal Interaction	Non-Verbal Interaction
Big	2_____		
Bigger	2_____		
Biggest	2_____		

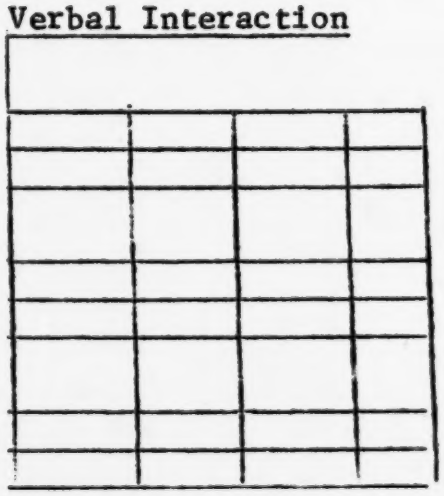
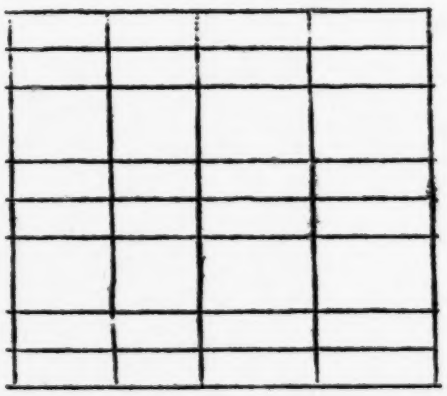
CARD 4

Cue Labels	Other Responses	Verbal Interaction	Non-Verbal Interaction
Thick	2_____		
Thicker	2_____		
Thickest	2_____		

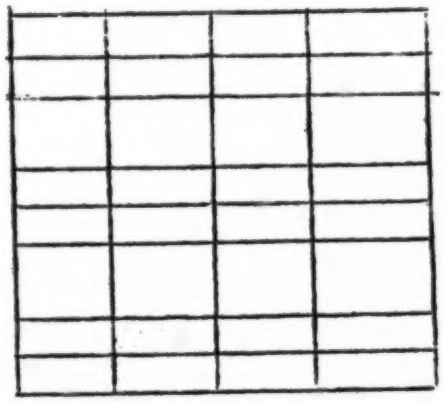
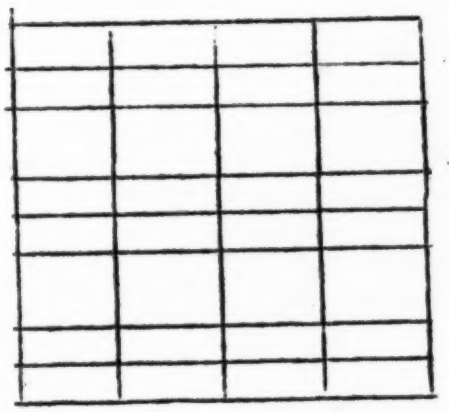
CARD 5

Cue Labels	Other Responses	Verbal Interaction	Non-Verbal Interaction
Circle	2_____		
Square	2_____		
Triangle (Ball 1) (Box 1)	2_____		

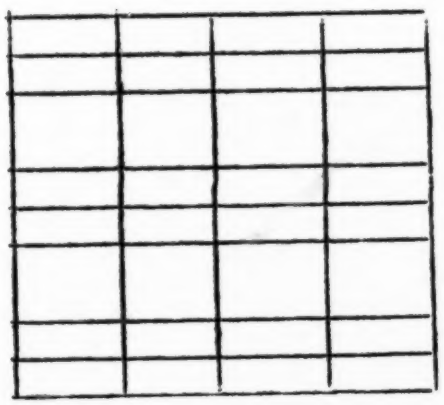
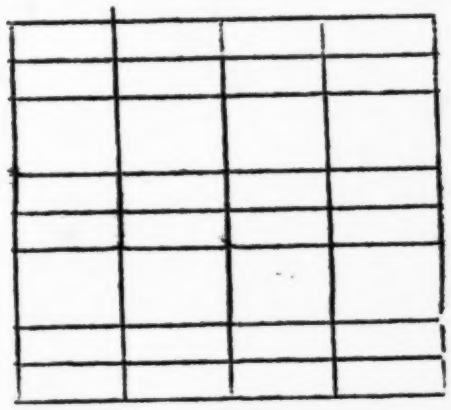
CARD 6

Cue Labels	Other Responses	Verbal Interaction	Non-Verbal Interaction
Cross	2_____		
Star	2_____		
Diamond	2_____		

CARD 7

Cue Labels	Other Responses	Verbal Interaction	Non-Verbal Interaction
Over (top)	_____		
Under (bottom)	2_____		
Side (next to)	2_____		

CARD 8

Cue Labels	Other Responses	Verbal Interaction	Non-Verbal Interaction
Corner	2_____		
On top of	2_____		
Underneath	2_____		

CARD 9

Cue Labels	Other Responses	Verbal Interaction	Non-Verbal Interaction
Red	2		
Circle	2		
Medium	2		
Underline	2		
Blue	2		
Square	2		
Large	2		
Right Side of line	2		
Yellow	2		
Triangle	2		
Small	2		
On top of Square	2		

CARD 10

Cue Labels	Other Responses	Verbal Interaction	Non-Verbal Interaction
Green	2		
Diamond	2		
Thick	2		
Left Top	2		
Orange	2		
Star	2		
Thicker	2		
Middle	2		
Purple	2		
Cross	2		
Thickest	2		
Right Bottom	2		

Appendix G

Category Definitions and Unitization Rules for Verbal and Non-Verbal Responses on the Maternal Teaching Style Instrument

72|73

I. Verbal Responses

a) Cue Label (CL) will be scored whenever the mother accurately uses a word or words to describe a figure on the card. For example, the mother would receive credit for saying "red" and/or for saying "triangle" when describing a red triangle to the child, but would receive no credit for a "that thing" response. Unit: see score sheet.

b) Direction (D) will be scored whenever the mother verbally instructs the child to do something with the test figures or cards. Unit: a direction is comprised of two elements: 1) to get the child to pick up the figure ("Pick up the blue square") and 2) to get the child to place the figure on the card "Put it in the upper right hand corner"). A "D" score is given when either one or both of these elements are given by the mother, but if a mother repeats an element, for example, "Pick it up", Pick it up" etc., she is given a score for each repetition.

c) Positive Feedback (P+) will be scored whenever the mother responds favorably with words to the accuracy of what the child is doing or has done. Unit: a sentence. For example, either "Good" or "That is good" are each scored P+.

d) Negative Feedback (P-) will be scored whenever the mother responds unfavorably and critically with words to the accuracy of what the child is doing or has done. Unit: same as c.

e) Question (Q) will be scored whenever the mother asks the child a question. Unit: same as c.

f) Information (I) will be scored whenever the mother uses words to enrich or add to the child's test experience. What the mother says must be related to the test and must provide information to the child but should not be related to the child's actual test performance. For example, "this is a matching game", or "this is a red triangle", would be information responses. Unit: same as c.

II. Physical Responses

a) Direction (P) will be scored whenever the mother touches the child's person in order to help the child to select a particular form and/or to place a form on the card. Unit: is best exemplified by the following: if contact is either sustained or brief only one score is given, but if, for example, the mother removes her hand and then replaces it on the child, two scores are given.

b) Positive Feedback (P+) will be scored whenever the mother touches the child's person to respond favorably to what the child is doing or has done. For example, if the mother hugs or pats the child. Unit: same as a.

c) Negative Feedback (P-) will be scored whenever the mother touches the child's person to respond unfavorably or critically to what the shild is doing or has done. For example, if the mother smacks or pinches the child. Unit: same as a.

III. Gesture Responses

a) Direction (G) will be scored whenever the mother employs a bodily movement in order to help the child to select a particular form and/or to place a form on the card. Unit: one unit is scored only when there is a change in the mother's affect or intent; when the mother gestures, stops and gestures again; or when mother shifts her efforts from one figure to another.

b) Positive Feedback (G+) will be scored whenever the mother employs a bodily movement to respond favorably to what the child is doing or has done. Unit: same as a.

c) Negative Feedback (G-) will be scored whenever the mother employs a bodily movement to respond unfavorably or critically to what the child is doing or has done. Unit: same as a.

Appendix H

Percentage of Agreement between Four Raters over Five Mother-Child Pairs on the Maternal Teaching Style Instrument (Pretest and Posttest)

Percentage of Agreement between Four Raters over Five Mother-Child Pairs on the Maternal Teaching Style Instrument (Pretest)

Mother-Child Pair #1*

	1	2	3	4
1	-	.86	.81	.78
2	-	-	.86	.86
3	-	-	-	.90

*Overall percentage of agreement .84

Mother-Child Pair #2*

	1	2	3	4
1	-	.87	.82	.87
2	-	-	.82	.84
3	-	-	-	.93

*Overall percentage of agreement .86

Mother-Child Pair #3*

	1	2	3	4
1	-	.95	.89	.82
2	-	-	.88	.84
3	-	-	-	.86

*Overall percentage of agreement .87

Mother-Child Pair #4*

	1	2	3	4
1	-	.93	.94	.81
2	-	-	.93	.88
3	-	-	-	.96

*Overall percentage of agreement .91

Mother-Child Pair #5*

	1	2	3	4
1	-	.98	1.00	.94
2	-	-	.98	.95
3	-	-	-	.98

*Overall percentage of agreement .97

Percentage of Agreement between Four
Raters over Five Mother-Child Pairs on the
Maternal Teaching Style Instrument (Posttest)

Mother-Child Pair #1*

	1	2	3	4
1	-	.92	.80	.94
2	-	-	.86	.91
3	-	-	-	.86

*Overall percentage of agreement .88

Mother-Child Pair #2*

	1	2	3	4
1	-	.91	.78	.75
2	-	-	.75	.79
3	-	-	-	.83

*Overall percentage of agreement .80

Mother-Child Pair #3*

	1	2	3	4
1	-	.79	.90	.94
2	-	-	.88	.85
3	-	-	-	.91

*Overall percentage of agreement .88

Mother-Child Pair #4*

	1	2	3	4
1	-	.90	.90	.95
2	-	-	.90	.87
3	-	-	-	.89

*Overall percentage of agreement .90

Mother-Child Pair #5*

	1	2	3	4
1	-	.95	.94	.98
2	-	-	.97	.92
3	-	-	-	.91

*Overall percentage of agreement .95